

POPULATION AND SUBSPECIFIC VARIATION IN *GERRIS REMIGIS* SAY¹

Diane Calabrese²

Thomas Say (1832) first distinguished *Gerris remigis* Say from *G. paludum* F., a European congener. He described the species from New York State. Drake and Harris (1934) examined *G. remigis* from every state in the U.S. and from Canada and Mexico and found that the species varies greatly from population to population in size, color and wing form. Noteworthy populations in this respect are that of southeastern Ohio-northwestern West Virginia, with sandy-red, slender-bodied members; and those of Utah, Arizona and New Mexico with sandy-red members (and distinct from the similarly colored *G. ampla arizonensis* Kuitert). On the bases of variation in these populations and the notable absence of macropterous forms one might consider them as geographically isolated. However, considering the work of Riley (1920) on migration by legs in this species in times of drought and the nearness of populations fitting more closely the description of *G. remigis*, more data are needed before a determination concerning the geographical isolation of these populations can be made.

One population which cannot be rejected as a subspecies on this basis is that from California and Oregon. Considering the geographical isolation, morphological characters, percentage of macropterous forms in this population and a suggestion by Michel (1961) that on the basis of internal male genital characters what is termed *G. remigis* in the East is not what is termed *G. remigis* in the West, this western population is designated a new sub-species, *G. remigis caloregon*, in recognition of its geographical location. The subspecies is separated from *G. remigis remigis* by the following key:

¹ Accepted for publication: August 23, 1973.

² Biological Sciences Group, The University of Connecticut, Storrs, Connecticut 06268.

Males

Emargination of last abdominal sternite with sides subparallel; posterior margin of emargination fitting closely against first genital segment and not clothed with short dense pubescence..... *G. remigis remigis*

Emargination of last abdominal sternite broadly rounded, sides not sub-parallel; posterior margin of emargination raised and clothed with short, dense pubescence.....
.....*G. remigis caloregon*

G. remigis caloregon (all measurements given in mm. for holotype male, with range for paratypes in parentheses): length 16 (15-17.5), width 3 (3-3.5), antennal segments – I, 2.2 (2.2-3), II, 1.1 (1.1-1.5), III, 1 (1-1.2) and IV, 1.2 (1.1-1.5).

Male: impressions on either side of median keel of ventral first genital segment deep; convex posterior projection of median keel of first genital segment and last abdominal sternite distinctly raised and covered by short dense hairs; abdominal sternites much lighter than venter of thorax; venter broad and not narrowing posteriorly.

Female: venter broad and not narrowing posteriorly; abdominal sternites much lighter than venter of thorax.

In *G. remigis remigis* the antennal segments are in the same proportion with respect to one another as in *G. remigis caloregon*, but they are proportionally shorter. In *G. remigis remigis* the venter is consistent in color and in both the male and the female it narrows posteriorly. The male of *G. remigis remigis* does not show the pubescence or raised characters as are present in the genital segments of *G. remigis caloregon*.

Of the type series of *G. remigis caloregon*, just less than 67% are macropters. This is in distinct contrast to the 3% macropter figure obtained for the greatest number of macropters in any population of *G. remigis remigis* (Calabrese, unpublished data). Froeschner (1962) reports a full 33% macropters of *G. remigis* in Missouri, a statement I have not been able to verify. The problem of wing polymorphism will be discussed at greater length in a future publication.

In 1871 Uhler described the species *Hydrotrechus robustus* from Clear Lake, California. Drake and Harris (1934) synonymized the species with *G. remigis*. Because Uhler's description had as its type specimen a damaged, apparently teneral, female, the relationship to *G. remigis caloregon* cannot be ascertained.

Holotype: ♂, macropter, California: Alpine Co., Hope Valley, VII-12-1966 (P. B. Schultz).

Paratypes: 1♀ macropter, 3♀ apters, 2♂ apters, California: S. Barb. Co., Canada del Medio, Sta. Cruz Isl. VI(16-23)1967 (R. C. Schuster); 4♂ macropters, 2♀ macropters, California: Eldorado Co., Pollock Pines VII-4-1967 (R. F. Denno); 1♀ macropter, California: Napa Co. VII-15-1967 (R. F. Denno); 2♀ apters, California: Solano Co., Mix Cyn. IV-19-1970 (L. Johnson); 1♂ macropter, California: Solano Co., Mix Cyn. 1955 (J. A. Riegel); ♀ macropter, California: Napa Co., Geryassa L. IV-2-1970 (L. Johnson); ♀ macropter, California, Sequoia N. P., Giant Forest IX-1-1970 (A. S. Menke); ♀ macropter, California: Alpine Co., Winnemucca L. VII-14-1964 (C. R. Kovacic); 5♂ macropters, 1♀ macropter, California: Sky Ranch, Madera Co. II-30-2968 (E. A. Kane); 5♀ macropters, 3♀ apters, Oregon: Lane Co., 10 mi. NE Oakridge VII-16-1959 (G. C. Kettunen); 2♂ apters, 3♀ apters, 1♂ macropter, 1♀ macropter, Oregon: Curry Co., Humbug St. Pk. VIII-25-1962 (G. C. Eickwort).

The holotype is in the collection of The University of California at Davis. Paratypes are in the collections of The University of California at Davis, Michigan State University, and the author.

Abstract.—Population variation is widespread in *Gerris remigis* Say. A west coast population is here designated *Gerris remigis caloregon* sub. sp. n.—D. Calabrese, Biological Sciences Group, University of Connecticut, Storrs, Conn. 06268.